

COUNTING CIRCUITS

UNIT: CIRCUITS

OBJECTIVE:

Students use data from their circuit builds to solve multiplication and division problems by counting, grouping, and comparing electrical components.

MATERIALS:

- ✓ Completed Circuit worksheet
- ✓ LED Count Data
- ✓ Battery Count Data
- ✓ Pencil

ACTIVITY SETUP:

Students have already built:

- One **series circuit**
- One **parallel circuit**

LED and battery counts are recorded.

STUDENT CHALLENGE:

Students must count, group, and compare circuit parts to show how electricity is shared using multiplication and division.

STUDENT DIRECTIONS:**1. Count Your LEDs and Batteries**

Record the data from your circuits:

Circuit Type	Number of LEDs	Number of Batteries
Series		
Parallel		

Tip: Count carefully and double-check your numbers.

2. Multiply to Find the Total

Find classmates with the same number of LEDs in any type of circuit to help answer the next two questions.

Problem 1A: Series Circuit

Each series circuit uses _____ LEDs.

We built _____ circuits.

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ LEDs}$$

We have a total of _____ LEDs in our series circuits.

Problem 1B: Parallel Circuit

Each parallel circuit uses _____ LEDs.

We built _____ circuits.

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ LEDs}$$

We have a total of _____ LEDs in our parallel circuits.

3. Divide to Share Evenly

Division helps us share items into equal groups.

Problem 2:

There are _____ LEDs in total.

Each circuit should use **2 LEDs**.

How many circuits can we light up?

$$\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ LEDs}$$

We can light up _____ circuits.

4. Notice and Explain the Pattern

Answer in words:

- Which circuit used more LEDs? (circle one) Series or Parallel

Complete the sentence: How are a series and parallel circuits the same?

How are series and parallel circuits different?

5. Think about your Math

Which math operation helped you most today? Why?

- Multiplication Division
